SYSTEM TOPOLOGIES FOR OPTIMUM CAPACITY TRANSMISSION OVER WIRELESS LOCAL AREA NETWORKS

ABSTRACT:

An inventive method provides optimum topology for a multi-antenna system dedicated to higher throughput/capacity by bundling the Point Coordination Function (PCF) operation in infrastructure mode of the current and/or enhanced IEEE MAC with PHY specifications that employ some form of coherent weighting based on CSI at the transmitter in conjunction with the corresponding optimum receiver detection based on CSI. Specifically, CSI is measured from a control message, so data messages and control messages are separated. In the contention period of IEEE 802.11, the RTS/CTS exchange is used for CSI and the data message is sent following the CTS message. In the contention free period, a poll by the PC is separated from a data frame, which gives the polled station the first opportunity to send a data message. This change in topology results in various changes to the frame exchange format in the CFP for various scenarios of data and control messages to be exchanged.